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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/700,429

11/03/2003

Glenn Joseph Leedy

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EXAMINER

RAO, SHRINIVAS H

ART UNIT

PAPER NUMBER

2814

MAIL DATE

DELIVERY MODE

06/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/700,429

Applicant(s)

LEEDY, GLENN JOSEPH

Examiner

Steven H. Rao

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 77-272 is/are pending in the application.
- 4a) Of the above claim(s) 77-109, 211-222 and 254-272 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 109-210 & 223-258 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

Applicants' amendment filed on March 22, 2007 has been entered and forwarded to the Examiner on April 05, 2007.

Therefore claims 109,122,135,163,179 and 195 as amended by the amendment and claims 110-121,123-134,136-162,164-178,180-194,196-210,and 223-258 as previously recited are currently pending in the Application.

Claims 1-76 have been previously cancelled. Claims 77-108, 211-222, and 259-272 are currently withdrawn from consideration.

Information Disclosure Statement

No further IDSs after the one filed on January 11, 2006 has been filed in this application.

Claim Rejections . 35 USC Section 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains

Patentability shall not be negated by the manner in which the invention was made.

Claims 109-201 and 223-258 are rejected under 35 U.S.C. 103 as being unpatentable over Shimoji (U.S. Patent No. 5,420,458, herein after Shimoji) and Mattox (U.S. Patent No. 4,825,277, herein after Mattox).

With respect to claim 109, 122, 163, 179 and 195, Shimoji describes a method of making an integrated circuit including the steps of: Forming a thin substrate (Shimoji, Fig. 3 A # 21, col. 3 line 48) with uniform thickness (Shimoji col. 2 lines 45-46) and forming on the substrate circuitry including active devices (Shimoji, Fig. 2 C # 51, 52, col. 3 lines 65-68) ;

Shimoji does not specifically describe the integrated circuit is substantially flexible while retaining its Structural integrity.

However. Mattox in col. 9 lines 1-13 describes the integrated circuit is ;substantially flexible while retaining its structural integrity to the semiconductor surface.

Therefore it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the Mattox's stress controlled dielectric membrane instead of Shimoji's to dielectric layer form devices having

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controlled stress relative to the semiconductor surface (Mattox col. 2 lines 5-10).

And removing a major portion of the semiconductor substrate while retaining the structural integrity (Shimoji Fig. 6 B # 8, col. 4 lines 50-57).

With respect to dependent claims 110- 114, 123-127, 136-140, 147-150, 153-155, 159-160, 164-166, 174-176, 180-182, 190-192, 196-198 and 206-209, wherein the thin substrate is formed prior to forming circuitry (Shimoji, Fig. 3 A # 21, col. 3 line 48)., after forming said circuitry, (Shimoji fig. 4, col. 4 lines 5-15) an elastic dielectric layer overlying the active devices. (Shimoji, Fig. 2 C # 51, 52, col. 3 lines 65-68, Mattox) ; deposition of elastic dielectric film by RF, CVD, PECVD (Mattox, also all well known in the art methods of deposition and also Shimoji col. 4 lines 15-20).

With respect to dependent claims 115, 128, 141, 151, 156, 161, 167, 177, 183-,, 193, 8 2 and 199, wherein the dielectric membrane is caused to have a stress of 8×10 dynes/cm or less. (See Mattox claim 9)

Mattox does not specifically mention a surface stress of 8×10^8 dynes/cm².

However Mattox in col. 7 lines 45-52 describes the stress range to be between -1 to 5×10^8 g dynes/cms to 1×10^9 to form devices having controlled stress relative to the semiconductor surface.

Therefore it would have been obvious to a person of ordinary skill in the art at

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the time of the invention to use the stress range 8×10^8 dynes/cm² instead of Mattox's 9 dynes/cm to 1×10^9 dynes/cm previously described overlapping range of 1 to 5×10^9 to form devices having controlled stress relative to the semiconductor surface (Mattox col. 2 lines 5-10).

With respect to claims 116, 119-120, 129, 132-133, 142, 145-146, 149, 157-159, 162-164-165, 168, 171-172, 174, 178, 184, 187-188, 194, 196-197, 200, 203-204, 206-207 and 210 wherein the stress is tensile (Mattox abstract line 8, etc., silicon or dielectric substrate (Shmioji see rejection of claim 110 above) ;

With respect to remaining claims including claims 117-118, 130-131, 134-135, 141, 143-144, 145, 156, 167-170, 177, 183, 185-186, 193, 195, 199, 201-202, 206-209 and Claims 121, 147 and 205 wherein the integrated circuit can be thinned to 50 microns. (Mattox col. 4 lines 15-23), and 205 wherein the dielectric layer is formed of inorganic material of an oxide of silicon, a nitride of silicon (Shmioji, silicon dioxide/nitride) or organic (Shmioji or well known - e.g. TOES).

Response to Arguments

Applicant's arguments filed on Jan. 20, 2006 have been fully considered but they are not persuasive, for the following reasons :

Applicants' arguments with regard to claims 179-194 and 247-252 are based impermissible piece meal analysis of why Shimoji or Mattox individually and not as combined allegedly do not teach/describe the recited "wherein the integrated circuit is elastic while retaining its structural integrity" is not persuasive.

In response to Applicants' piece meal analysis of the references, it has been held that one cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references.

Applicants' contention that Shimoji (and Mattox) ^{do not} ~~do not~~ teach/describe " providing a thin substrate with a uniform thickness" is not persuasive for reasons set out in the rejection above namely (Shimoji, Fig. 3 A # 21, col. 3 line 48) with uniform thickness (Shimoji col. 2 lines 45-46).

Applicants' contention that Mattox in col. 9 lines 1-13 does not show or suggest that the integrated circuit is elastic for reasons set out in detail in the previous response (pages 6-7) and incorporated here by reference for the sake of brevity.

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Applicants' essentially repeat the same arguments with respect to claim dependent claims 110-121, 148-152, 222-228 dependent upon claim 109; claims 123-134, 153-157 and 229-234 dependent upon claim 122; claims 136-147, 158-162 and 235-240 dependent upon claim 135 ; claims 164-178 and 241-246 dependent upon claim 163 and claims 196-210 and 253-258 dependent upon claim 195, namely the applied references to show/describe "wherein the integrated circuit is elastic while retaining its structural integrity" is not persuasive for reasons set out above and incorporated here by reference for sake of brevity.

Therefore all of applicants' arguments are not found to be persuasive and all the pending claims are rejected.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

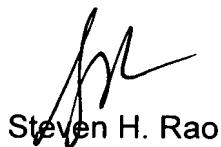
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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is (571) 272-1718. The examiner can normally be reached on 8.30-5.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1714. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

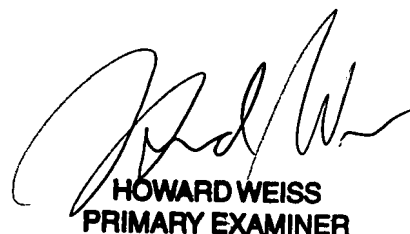
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Steven H. Rao

Patent Examiner

May 31, 2007



HOWARD WEISS
PRIMARY EXAMINER